**ENGINE MODEL SD33** 

BOSCH No.9 400 610 068 1/4 DKKC No. 101631-9775

Date: 15, Oct. 1987

Company: NISSAN DIESEL

No. 16700 C8605

Timing device: EP/SCD

105622-1100

Injection pump: PES6A 101063-9371

Governor: EP/RBD

105542-4271

### 1. Test Conditions:

Pump rotation: clockwiseviewed from drive side

Nozzle & Nozzle Holder Ass'y: 105780-8140 Nozzle Holder: 105780-2080

(BOSCH Type No. EF8511/9A)

(BOSCH Type No. EF8511/9)

Nozzle opening pressure: 175 kg/cm<sup>2</sup>

Transfer pump pressure: 1.6 kg/cm<sup>2</sup>

Injection pipe: Inner Dia. 2 mm x Outer Dia. 6 mm - Length 600 mm

Test Oil: ISO4113 or SAE Standard Test Oil (SAE J967d)

Oil Temp.: 40 +5°C

Overflow valve opening pressure:  $-- \text{kg/cm}^2$  (Part No. ----)

### 2. Injection Timing:

Pre-stroke: No. 1 Plunger 2.0 ±0.05 mm

Note: Adjust with control rod position of --- mm

Injection order:  $\frac{60^{\circ}\pm30'}{4}$ , 1  $\frac{120^{\circ}\pm30'}{2}$ , 1  $\frac{180^{\circ}\pm30'}{6}$ , 1  $\frac{240^{\circ}\pm30'}{3}$ , 1  $\frac{300^{\circ}\pm30'}{5}$ 

(interval:  $-- \pm 30'$ )

Tappet clearance:

Bolt adjustment type:

More than 0.3 mm for all cylinders.

Shim adjustment type:

Manually rotate the camshaft 2 - 3 times and confirm that

it rotates smoothly.

Plungers are numbered from the Drive side.

### 4. Injection Quantity:

Adjust- ing Point	Rod P^-⊖on 'mm⟩	on Speed (cc/1000 strokes)		Max. var bet. cyl (%)	Fixed	Remarks
	. 2.6	800	33.0~35.0	±2.5	Rack	Basic
	Approx. 7.8	300	6.5 ~ 8.5	±15	Rack	
	12.6	800	33.0 ~ 35.0	±2.5	Rack	
	12.3	1,900	(36.5 ~ 39.7)	±4	Rack	
	15 ± 0.1	100	(40.0)	_	Rack	Control rack limit
	1					
		1				

### 5. Timing Advance Specification:

Pump Speed (r.p.m)	Below 550	500	1,100	1,900	
Advance Angle (deg.)	Start	Below 0.5	1.2 - 2.2	Fini <b>s</b> h 5.5 ~ 6.5	

# (i) Diesel Kiki

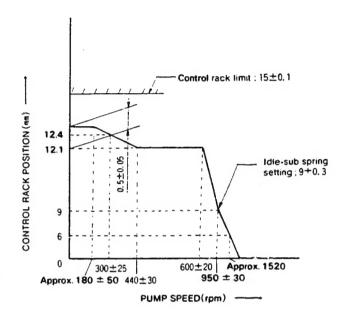
Service Department

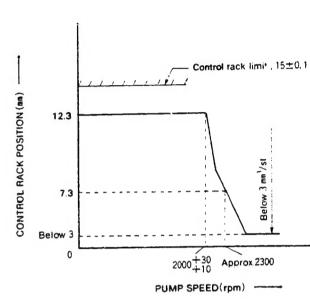
DIESEL KIK! CO., LTD. 3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 153, JAPAN Tel. (03) 400-1551-Fax: (03) 499-4115

### 3. GOVERNOR ADJUSTMET

(1)Pneumatic Governor

(2)Mechanical Governor





#### Air Tightness Test

- 1. Increase the pressure of the pneumatic governor's negative pressure chamber to 500 mm Aq at a pump speed of 500 rpm and a control rack position of 12.2 mm.
- 2. Then, confirm that it takes 10 seconds or more for the negative pressure to fall from 500 mmAq to 480 mmAq.

#### Adjustment

1. Pneumatic Governor (Pump Speed: 500 rpm)

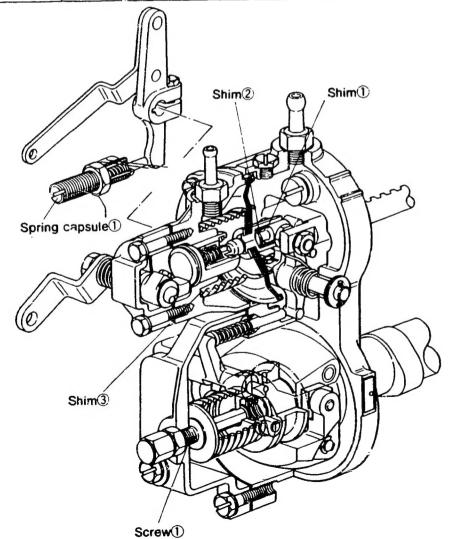
Item	Negati¥e Press. (mmAq)	Rack Position (mm)	Remarks		
Smoke Set Screw Adjust- ment	0	12. 2	Adjust using spring capsule ①.		
Torque Control Adjustment					
(1)Start of torque control spring movement	Approx 180	12.2	• Adjust thickness of shim ①.		
②End of torque control spring movement	410~470	12.1	Adjust thickness of shim ②.		
3Confirm	275~325	12.4			
Confirm torque control stroke			• Inspection : $0.5\pm0.05$ mm		

### 101631-9775 3/4

Item	Negative Press.	Rack Position (mm)	Remarks
High-speed Control Adjustment	580~620	12.1	Adjust thickness of shim ③.
Idling Adjustment	870~930 Approx 1470	9+0.3 6	Adjust using spring capsule ②.     Confirm

# 2. Mechanical Governor (Negative pressure: 370±20 mmAq)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Maximum Speed Control Adjustment	2010~2030 Approx 2300	12.3 7.3	Adjust using screw ①. Confirm Confirm (Check the fuel injection quantity:below 3 cc/1000st)

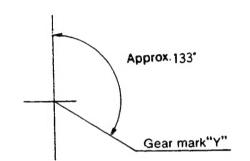


### Timing Setting

At No.1 plunger's beginning of injection position.

B.T.D.C. : 20°

# Pump center line



ENGINE MODEL SD33T

BOSCH No.9 400 610 063 1/5

DKKC No. 101641-9123

Date: 15, Oct 1987

Company: NISSAN DIESEL

No. 16700 C8700

Injection pump: PES6A

Governor: EP/RLD

Timing device: EP/SCD

105622-1120

1. Test Conditions:

Pump rotation: clockwiseviewed from drive side

101064-9050

Nozzle & Nozzle Holder Ass'y: 105780-8140 Nozzle Holder: 105780-2080

(BOSCH Type No. EF8511/9A)

(BOSCH Type No. EF8511/9)

105931-1522

Nozzle opening pressure: 175 kg/cm<sup>2</sup>

Transfer pump pressure: 1.6 kg/cm<sup>2</sup>

Injection pipe: Inner Dia. 2 mm x Outer Dia. 6 mm - Length 600 mm

Test Oil: ISO4113 or SAE Standard Test Oil (SAE J967d)

Oil Temp.: 40 +5°C

Overflow valve opening pressure: -- kg/cm² (Part No. -- --)

2. Injection Timing:

Pre-stroke: No. 1 Plunger 2.3 ±0.05 mm

Note: Adjust with control rod position of --- mm

Injection order: 1  $\frac{60^{\circ} \pm 30^{\circ}}{4}$ , 1  $\frac{120^{\circ} \pm 30^{\circ}}{2}$ , 1  $\frac{180^{\circ} \pm 30^{\circ}}{6}$ , 1  $\frac{240^{\circ} \pm 30^{\circ}}{3}$ , 1  $\frac{300^{\circ} \pm 30^{\circ}}{5}$ 

(interval: - - ± 30')

Plungers are numbered from the Drive side.

Tappet clearance:

Bolt adjustment type:

More than 0.3 mm for all cylinders.

Shim adjustment type:

Manually rotate the camshaft 2 - 3 times and confirm that

it rotates smoothly.

4. Injection Quantity:

Adjust- ng Point			orition Speed (cc/1000 strokes)		Fixed	Remarks
Α	13.7	1,000	47.2 ~ 49.4	±2	Rack	Basic
н	Approx. \$.9	360	6.4 ~ 8.6	±15	Rack	:
A	R <sub>1</sub> (13.7)	1,000	47.2 ~ 49.4	_	Lever	Basic Boost press. Above 400 mmHg
В	R <sub>1</sub> -0.7	2,000	45.2 ~ 49.2		Lever	Boost press. Above 400 mmHg
С	R <sub>2</sub> (12.7)	500	32.6 ~ 36.6	-	Lever	Boost press. 0
1	(15.8)	100	57.0 ~ 67.0	_	Lever	Control rack limit
		:				

# 5. Timing Advance Specification:

Pump Speed (r.p.m)	Below 550	500	1,200	1,900	
Advance Angle (deg.)	Start	Below 0.5	1.7 ~ 2.7	Finish 5.5 — 6.5	

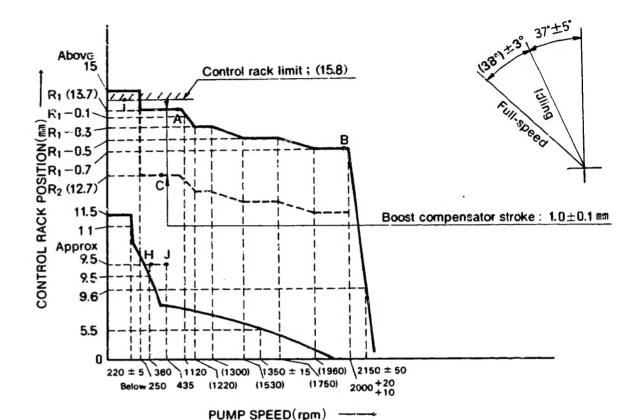
# (1)) DIESEL KIKI

Service Department

DIESEL KIKI CO., LTD. 3-6-7 SHIBUYA. SHIBUYA-KU. TOKYO 150. JAPAN Tel. (03) 400-1551 Fax: (03) 499-1115

#### 3. GOVERNOR ADJUSTMENT

### CONTROL LEVER ANGLE



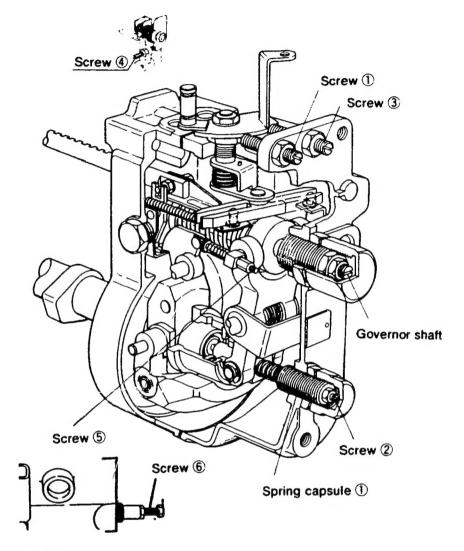
#### Idling Adjustment

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Text Lever Position:	80~100	11.5	Adjust using screw ①.
Iding Position Setting	360 215~225	9, 5 11	• Adjust using spring capsule ①.
Governor Spring Contact	1335 ~ 1365	5. 5	Adjust the governor shaft position.
Adjustment			• Confirm
Setting the Idling	360	Approx.9. 5	• Adjust using screw ①.
Lever Position	_		• Confirm the control lever angle (32*~42*)

#### 101641-9123 3/5

### Full Load Adjustment (Torque Cam No. 74)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Full Speed Lever Position: Temporary Setting	Approx.2000	(13.7)-0.7	Adjust using screw ③.  (Do not enter governor control range)
Full Load Position Adjustment	1000	13. 7	Adjust using screw ④.
Torque Cam Position Adjustment	1120	(13.7)-0.1	Adjust using screw (5).
Adjustitions	(1220)	(13.7) -0.3	Confirm
	(1300)	(13.7)-0.3	• "
	(1530)	(13.7)-0.5	• "
	(1750)	(13.7)-0.5	o "
	(1960)	(13.7)-0.7	• "
			• "
			• "
			• "
	Confirm inject	tion quantity at	points A to B.
Maximum Speed control Adjustment	2010 ~ 2020	(1.37) - 0.7	Adjust using screw ③.
Aujustinetit	2100 ~ 2200	9.6	• Confirm
			• After adjustment, confirm that the control lever angle is 40°∼46°
Confirming Excess Fuel Limit for Engine Starting	435	Approx.9.5	• Set the control lever at point J .
Limit for Engine Starting	0	11.5	Confirm
	0	Above 15	Move the control lever to the "fi speed" position and then confirm control rack position.
Confirm the Black Smoke Limit	Confirm that When the co	the control rack introl lever is mo use the numb	H. Then, operate the pump at 250 rpm. c does not move beyond 13, 7 mm. oved to the "full-speed" position speed and confirm that the control raspeed of — rpm.
Rack Limiter Adjustment	0	(15.8)	Fix the control rack using screw Part No. 157954-3700
	that it equal:	e depth of the of the depth of the quantity at poi	control rack cap. Then, adjust screw 6 the rack cap and install the rack cap. Cont. I.



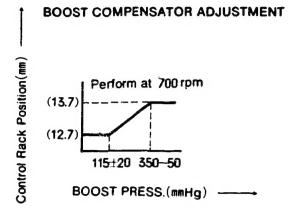
### ■ Boost Compensator Adjustment

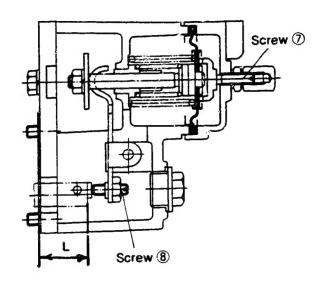
- Maintain the pump speed at 700 rpm and fix the control lever in the full load position.
- In this condition, use calipers to measure the dimension "L" of the pushrod from the end face of the spacer. (Inspection: 23.9 to 24.1 mm)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Setting the Boost Compensator Spring Force	95~135	12.7	Adjust using screw ①.
Boost Compensator Spring Adjustment (Boost compensator stroke: 1.0±0.1 mm)	0 95~135 300~350	13. 7→12. 7 12. 7 13. 7	<ul> <li>Adjust using screw ⑦.</li> <li>Confirm</li> <li>Confirm</li> </ul>

B - 5

101641-9123 5/5



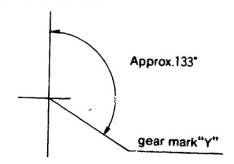


### Timing Setting

At No. 1 plunger's beginning of injection postion.

B.D.T.C. : 20

Pump center line



**ENGINE MODEL SD33T** 

BOSCH No.9 400 610 069 1/5 DKKC No. 101641-9133

Date: 15, Oct. 1987

Company: NISSAN DIESEL

No. 16700 C8701 Timing device: EP/SCD

101064-9040

Governor: EP/RLD

105931-1522

105622-1120

1. Test Conditions:

Injection pump: PES6A

Pump rotation: clockwiseviewed from drive side

Nozzle & Nozzle Holder Ass'y: 105780-8140 Nozzle Holder: 105780-2080 (BOSCH Type No. EF8511/9) (BOSCH Type No. EF8511/9A)

Nozzle opening pressure: 175 kg/cm²

Transfer pump pressure: 1.6 kg/cm<sup>2</sup>

Injection pipe: Inner Dia. 2 mm x Outer Dia. 6 mm - Length 600 mm

Test Oil: ISO4113 or SAE Standard Test Oil (SAE J967d)

Oil Temp.: 40 +5°C

Overflow valve opening pressure:  $-- kg/cm^2$  (Part No. ---)

2. Injection Timing:

Pre-stroke: No. 1 Plunger 2.3 ±0.05 mm

Note: Adjust with control rod position of --- mm

Injection order:  $1 \frac{60^{\circ} \pm 30^{\circ}}{4}$ ,  $1 \frac{120^{\circ} \pm 30^{\circ}}{2}$ ,  $1 \frac{180^{\circ} \pm 30^{\circ}}{6}$ ,  $1 \frac{240^{\circ} \pm 30^{\circ}}{3}$ ,  $1 \frac{300^{\circ} \pm 30^{\circ}}{5}$ 

(interval:  $-- \pm 30'$ )

Plungers are numbered from the Drive side.

Tappet clearance:

Bolt adjustment type:

More than 0.3 mm for all cylinders.

Shim adjustment type:

Manually rotate the camshaft 2 - 3 times and confirm that

it rotates smoothly.

4. Injection Quantity:

ng Point	Point Rod Pump Point Speed (mm) (r.p.m)		Injection Q'ty (cc/1000 strokes)	Max. var bet. cyl (%)	Fixed	Remarks		
A	13.7	1,000	46.7 ~ 48.9	±2	Rack	Basic		
H	Approx. 9.9	360	6.4 ∼8.€	±15	Rack	1		
A	R <sub>1</sub> (13.7)	1,000	46.7 ~ 48.9	_	Lever	Basic	Boost press. Above 400 mmHg	
В	R <sub>1</sub> -0.7	2,000	46.7 ~ 50.7		Lever		Boost press. Above 400 mmHg	
С	R <sub>2</sub> (12.7)	500	33.7 ~ 37.7	-	Lever	Boost press. 0		
1	(15.8)	100	57.0 ~67.0	-	Lever	Control	rack limit	

# 5. Timing Advance Specification:

:	Pump Speed (r.p.m)	Below 550	500	1,200	1,900	
1	Advance Angle (deg.)	Start	Below 0.5	1.7 ~ 2.7	Finish 5.5 ~ 6.5	

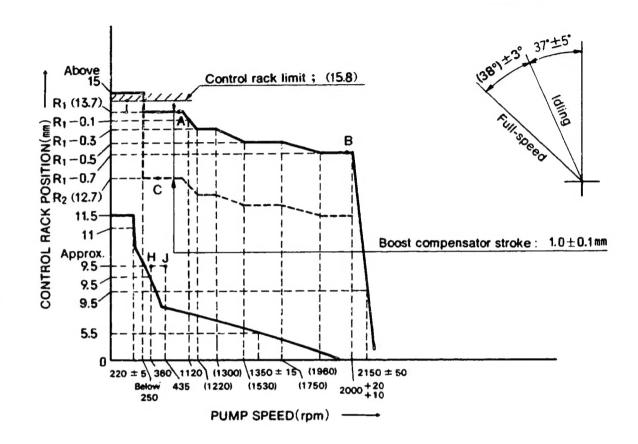
# DIESEL KIKI

Service Department

DIESEL KIKI CO., LTD. 3-6-7 SHIBUYA, SHIBUYA-KU, YOKYO 150, JAPAN Tel. (03) 400-1551 - Fax: (03) 499-4115

#### 3. GOVERNOR ADJUSTMENT

CONTROL LEVER ANGLE



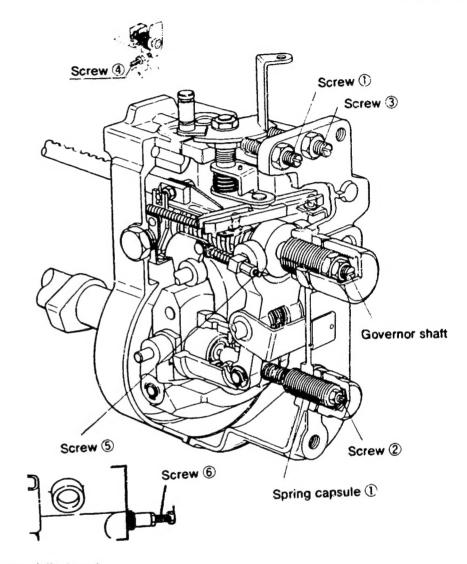
#### ■ Idling Adjustment

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Idling Lever Position: Temporary Setting	80~100	11.5	Adjust using screw ①.
Idling Position Setting	360 215~225	9.5 11	<ul> <li>Adjust using spring capsule ①.</li> <li>Adjust using screw ②.</li> </ul>
Governor Spring Contact Adjustment	1335 ~ 1365	£. 5 ——	Adjust the governor shaft position.     Confirm
Setting the Idling Lever Position	360	Approx.9. 5	<ul> <li>Adjust using screw ①.</li> <li>Confirm the control lever angle (32*~42*)</li> </ul>

#### 101641-9133 3/5

# Full Load Adjustment (Torque Cam No. 74)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks					
Full Speed Lever Position: Temporary Setting	Approx.2000	(13.7)-0.7	Adjust using screw ③.  (Do not enter governor control range)					
Full Load Position Adjustment	1000	13.7	Adjust using screw 4.					
Torque Cam Position Adjustment	1120	(13.7)-0.1	Adjust using screw ⑤.					
Adjustition	(1220)	(13.7)-0.3	Confirm					
	(1300)	(13.7) - 0.3	• "					
	(1530)	(13.7)-0.5	• "					
	(1750)	(13.7)-0.5	• "					
	(1960)	(13.7)-0.7	• *					
			• "					
			• *					
			• *					
	Confirm injection quantity at points A to B.							
Maximum Speed control Adjustment	2010 ~ 2020	(13.7)-0.7	Adjust using screw ③.					
Adjustitient	2100 ~ 2200	9.5	Confirm					
	_		<ul> <li>After adjustment, confirm that the control lever angle is 40°~46°</li> </ul>					
Confirming Excess Fuel	435	Approx.9.5	Set the control lever at point J .					
Limit for Engine Starting	0	11.5	Confirm					
	0	Above 15	<ul> <li>Move the control lever to the "fu speed" position and then confirm the control rack position.</li> </ul>					
Confirm the Black Smoke Limit	Confirm that When the co	the control rack introl lever is make the pump	t H. Then, operate the pump at 250 rpm. to does not move beyond 13.7 mm. oved to the "full-speed" position speed and confirm that the control ran speed of — rpm.					
Rack Limiter Adjustment	0	(15.8)	• Fix the control rack using screw Part No. 157954-3700					
	that it equal	e depth of the sthe depth of the quantity at point	control rack cap. Then, adjust screw 6 the rack cap and install the rack cap. Coint I.					



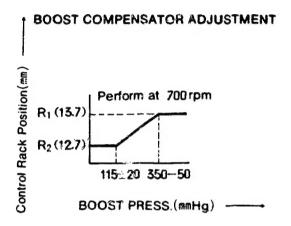
# ■ Boost Compensator Adjustment

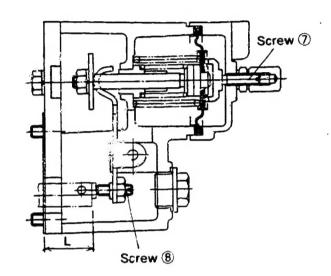
- Maintain the pump speed at 700 rpm and fix the control lever in the full load position.
- In this condition, use calipers to measure the dimension "L" of the pushrod from the end face of the spacer. (Inspection: 23.9 to 24.1 mm)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Setting the Boost Compensator Spring Force	95~135	12.7	• Adjust using screw ${\mathcal D}$ .
Boost Compensator Spring Adjustment (Boost compensator stroke: 1.0±0.1 mm	6 95∼135 300∼350	13.7→12.7 12.7 13.7	Adjust using screw ®.     Confirm     Confirm

B = 8

101641-9133 5/5

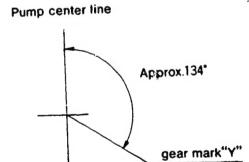




### Timing Setting

At No. 1 plunger's beginning of injection postion.

B.D.T.C. : 20°



**ENGINE MODEL SD33T** 

BOSCH No.9 400 610 070 1/5

DKKC No. 101641-9152

Date: 15, Oct. 1987 Company: NISSAN DIESEL

No. 16700 C8702

Injection pump: PES6A

101064-9050

Governor: EP/RLD 105931-1522 Timing device: EP/SCD

105622-1120

1. Test Conditions:

Pump rotation: clockwiseviewed from drive side

Nozzie & Nozzie Holder Ass'y: 105780-8140 Nozzie Holder: 105780-2080

(BOSCH Type No. EF8511/9A)

(BOSCH Type No. EF8511/9)

Nozzle assning pressure: 175 kg/cm²

Transfer pump pressure: 1.6 kg/cm<sup>2</sup>

Injection pipe: Inner Dia. 2 mm x Outer Dia. 6 mm - Length 600 mm

Test Oil: ISO4113 or SAE Standard Test Oil (SAE J967d)

Oil Temp.: 40 +5°C

Overflow valve opening pressure:  $- - kg/cm^2$  (Part No. - - - -)

2. Injection Timing:

Pre-stroke: No. 1 Plunger 2.3 ±0.05 mm

Note: Adjust with control rod position of --- mm

Injection order: 1  $\frac{60^{\circ} \pm 30^{\circ}}{4}$ , 1  $\frac{120^{\circ} \pm 30^{\circ}}{2}$ , 1  $\frac{180^{\circ} \pm 30^{\circ}}{6}$ , 1  $\frac{240^{\circ} \pm 30^{\circ}}{3}$ , 1  $\frac{300^{\circ} \pm 30^{\circ}}{5}$ 

(interval:  $-- \pm 30'$ )

Tappet clearance:

Bolt adjustment type:

More than 0.3 mm for all cylinders.

Shim adjustment type:

Manually rotate the camshaft 2 - 3 times and confirm that

it rotates smoothly.

Plungers are numbered from the Drive side.

4. Injection Quantity:

Adjust- ing Point	Rod Position (mm)	Pump Speed (r.p.m)	Injection O'ty (cc/1000 strokes)	Max. var bet. cyl (%)	Fixed	Remarks
Α	13.7	1,000	47.2 ~ 49.4	±2	Rack	Basic
н	Approx. 9.9	360	6.4 ~ 8.6	±15	Rack	
A	R <sub>1</sub> (13.7)	1,000	47.2 ~ 49.4	-	Lever	Basic Boost press. Above 400 mmHg
В	R <sub>1</sub> -0.7	2,000	45.2 ~ 49.2	-	Lever	Boost press. Above 400 mmHg
C	R <sub>2</sub> (12.7)	500	32.6 - 36.6	/-	Lever	Boost press. 0
1	(15.8)	100	57.0 ~ 67 0	/ -	Léver	Control rack limit
111100 1111						
) - mai - ge	••••• <del>•</del>	water to have the	<del>-</del>			

# 5. Timing Advance Specification:

Pump Speed (r.p.m)	Below 550	500	1.200	1,900	
Advance Angle (deg.)	Start	Below 0.5	1.7 ~ 2.7	Finish 5.5 ~ 6.5	

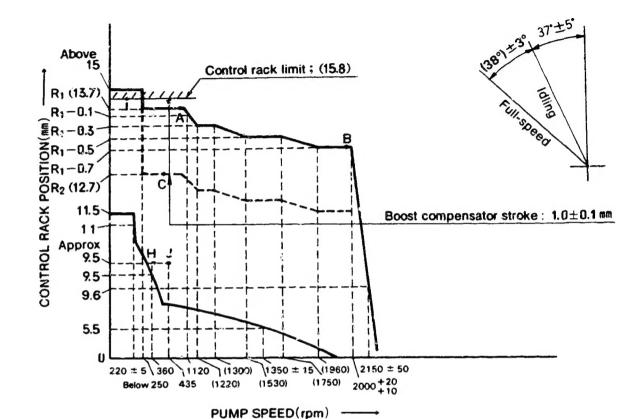
# DIESEL KIKI

Service Department

DIESEL KIKI CO. LTD. 3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN Tel. (03) 400-1551 - Fax: (03) 499-4115

### 3. GOVERNOR ADJUSTMENT

CONTROL LEVER ANGLE



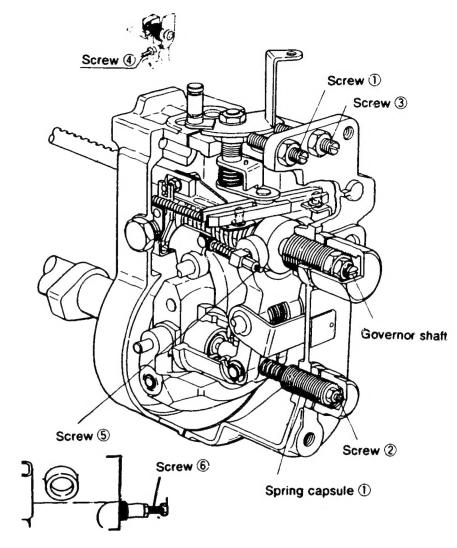
#### Idling Adjustment

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Idling Lever Position: Temporary Setting	80~100	11.5	Adjust using screw ①.
Idling Position Setting	360 215~225	9.5 11	Adjust using spring capsule ①.
Governor Spring Contact Adjustment	1335 ~ 1365	5. 5	Adjust the governor shaft position.
Adjustinent			• Confirm
Setting the Idling Lever Position	360	Approx.9.5	• Adjust using screw 1).
Level Fosition			• Confirm the control lever angle (32*~42*)

#### 101641-9152 3/5

# Full Load Adjustment (Torque Cam No. 74)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Full Speed Lever Position: Temporary Setting	Approx.2000	(13.7)-0.7	Adjust using screw ③.  (Do not enter governor control range)
Full Load Position Adjustment	1000	13. 7	Adjust using screw ④.
Torque Cam Position Adjustment	1120	(13.7)-0.1	Adjust using screw ⑤.
,	(1220)	(13.7)-0.3	Confirm
	(1300)	(13.7)-0.3	• "
	(1530)	(13.7) -0.5	• "
	(1750)	(13.7) - 0.5	• "
	(1960)	(13.7)-0.7	• "
			• "
			• "
			• "
	Confirm injec	tion quantity at	points A to B.
Maximum Speed control Adjustment	2010 ~ 2020	(1.37) — 0.7	Adjust using screw ③.
Adjustinent	2100 ~ 2200	9.6	Confirm
			<ul> <li>After adjustment, confirm that the control lever angle is 40°~46°</li> </ul>
Confirming Excess Fuel Limit for Engine Starting	435	Approx.9.5	• Set the control lever at point J .
Little is Engine Starting	0	11.5	Confirm
	0	Above 15	<ul> <li>Move the control lever to the "full- speed" position and then confirm the control rack position.</li> </ul>
Confirm the Black Smoke Limit	Confirm that the Corragain increase	he control rack atrol lever is mo se the pump s	H. Then, operate the pump at 250 rpm. does not move beyond 13.7 mm. wed to the "full-speed" position speed and confirm that the control rack speed of — rpm.
Rack Limiter Adjustment	0	(15. 8)	Fix the control rack using screw Part No. 157954-3700
	that it equals	depth of the c the depth of th quantity at poin	ontrol rack cap. Then, adjust screw 6 so he rack cap and install the rack cap. Con- ht I.

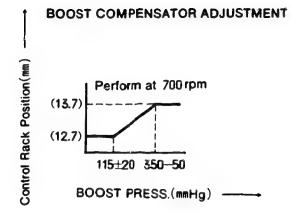


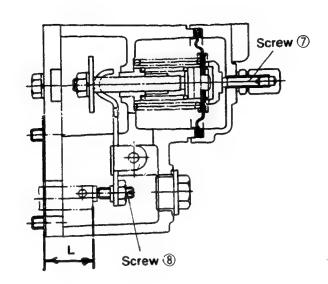
### Boost Compensator Adjustment

- Maintain the pump speed at 700 rpm and fix the control lever in the full load position.
- In this condition, use calipers to measure the dimension "L" of the pushrod from the end face of the spacer. (Inspection: 23.9 to 24.1 mm)

Item	Pump Speed (rpm)	Rack Position (mm)	Remarks
Setting the Boost Compensator Spring Force	95~135	12. 7	• Adjust using screw ⑦.
Boost Compensator Spring Adjustment (Boost compensator stroke: 1.0±0.1 mm)	0 95~135 300~350	13. 7→12. 7 12. 7 13. 7	<ul> <li>Adjust using screw ⑦.</li> <li>Confirm</li> <li>Confirm</li> </ul>

101641-9152 5/5



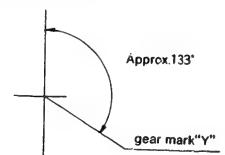


# ■ Timing Setting

At No. 1 plunger's beginning of injection postion.

B.D.T.C. : 20





TEST OIL: 1 S O 4113 or S A E J967d

Pump rotation:

Distributor-type

ENGINE MODEL: C223-T

(NP-VE4/10F2150RNP259) Injection pump No: 104640 - 1022

BOSCH No. 9 460 610 259 1/2 DKKC No. 104740-1141 Date: 15. Oct. 1987

Company: ISUZU 8 94144 850 1

clockwise-viewed from drive side

For Test Condition see Microfiche No.WP-210(N16)

Pre-stroke: -- mm

1. Setting	Pump speed (rpm)	Settin	gs	Charge-air Press(mmHg)	Difference in delivery(cc)
1-1 Timing device travel	1,250	3.5~ 3.9	(mm)	0	
1-2 Supply pump pressure	1,250	4.6~ 5.0	(kg/cm²)	0	
1-3 Full load delivery	1,250	47.8~48.8	(cc/1,000st)	590~610	4.0
1-4 Idle speed ragulation	375	9.3~13.3	(cc/1,000st)	U	2.0
1-5 Start	100	Above 60.0	(cc/1,000st)	0	
1-6 Full-load speed reguration	2,550	19.9~25.9	(cc/1,000st)	590~610	7.0
1-7 CSD Adjustment	500~700	Cancel speed	•		

_	-	A	ications
•	Tast	SDOOT	icanone .
	103	JUGGI	ICCIO

2-1	Timing device	N =	rpm mm	1, 250 3. 4~ 4. 0	1,700 5.8∼ č.8	2, 150 8. 7~ 9. 4	
2-2	Supply pump	N =	rpm ; kg/cm²	250 1.6~ 2.2	1, 250 4.6~ 5.0	2,000 6.1~ 6.7	_

2-3	Overflow delivery	N = rpm cc/10s	1,000 40.8~84.2

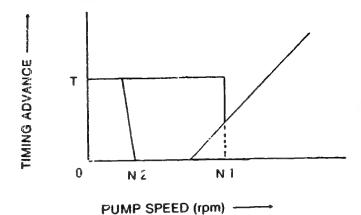
Solenoid

2-4 Fuel delive Speed control lever	Pump speed	Fuel delivery (cc/), 000st)	Charge-air Press(mmHg)	Difference in delivery
End stop	1, 250	47.3~49.3	590~610	
•	600	34.1~39.1	0	
	900	42.7~44.7	290~310	
	1, 150	46.5~51.5	: 590~610 ;	
	1,250	34.1~39.1	. 0	
	2,000	38.4~43.4	590~610	
	2, 175	36.7~41.7	590~610	
	2,550	19.4~26.4	590~610	
	2,800	Below 7.0	590~610	
Switch OFF	375	0	0	
Idle stop	375	9.3~13.3	0	
	450	Below 3. 0	0	
		and the second s		
2-5	Voltage : 12	V		<u> </u>

3. Dimensions							
K	3. 2~3. 4	mm					
KF	5.7~5.9	mm					
NS	1.5~1.7	mm					
BCS	3.4~3.6	mm					

Co	ntrol lever angle	
α	21.0~27.0	deg
A	9.2~11.0	mm
β	37. 0~47. 0	deg
8	12. 0~15. 0	mm
Y		deg mm

#### OCSD Adjustment



N1 (Cancel) --- 500~700rpm N 2 ·····Below 280rpm T..... 2.3~2.7mm

Upon canceling of CSD check the rerolution and make sure no fuel leakage from

the overflow of CSD

DIESEL KIKI

Service Department

DHESEL KIKE CO., LTD. 3-6-7 SHIBUYA, SHIBUYA-KU, YOKYO 150, JAPAN Tel: (03) 400-1551 · Fax: (03) 499-4115

cc/1000st)

29.7~30.7

# INJ. PUMP CALIBRATION DATA

TEST OIL: I S O 4113 or S A E J967d

Distributor-type

MOTOR: LD20T

(NP-VE4/10F2400RNP408) Injection pump No: 104640-2061

clockwise-viewed from drive side Pump rotation:

Pre-stroke: -

1. Setting	Pump speed (rpm)	Settin	gs	Charge air press(mmHg)	Difference in delivery(cc)
1-1 Timing device travel	900	$T=1.0\sim 1.4$	(mm)	255~275	
1-2 Supply pump pressure	900	3.2~ 3.8	(kg/cm²)	255~275	
1-3 Full load delivery without charge air pressure	600	29.7~30.7	(cc/1,000st)	0	2.5
Full load delivery with charge air pressure	900	39.5~40.5	(cc/1,000st)	255~275	•
1-4 Idle speed regulation	360	$4.6 \sim 7.6$	(cc/1,000st)	0	2.5
1-5 Start	100	40.0~50.0	(cc/1,000st)	0	
1-6 Full-load speed regulation	2,700	6.7~12.7	(cc/1,000st)	474~494	
1-7 Load-timer Adjustment	900	T-0.65±0.2mm			•

#### 2. Test Specifications

2-1	Timing device	N = rpm mm	900 0.9∼ 1.5	1,200 2.8~ 3.6	2, 400 8. 1~ 9. 0
2-2	Supply pump	$N = rpm kg/cm^2$	900 3.1~ 3.9	1, 200 3.8~ 4.6	2, 400 6. 9~ 7. 7
2-3	Overflow delivery	N = rpm $cc/10s$	900 41.0~86.0		
2-4	Fuel injection quantities				3. Dimensions

2-4 Fuel inject	ion quantities			
Speed control lever position	Pump speed (rpm)	Fuel delivery (cc/1,000st)	Charge air press(mmHg)	Difference in delivery(cc)
Full speed position	600	29.2~31.2	0	
,	900	39.0~41.0	255~275	
	2, 200	34.8~38.8	490~510	
	2,700	5.2~12.2	474~494	
	2800	Below 6.0	474~494	
Switch OFF	360	0	0	
Idling position	360	4.1 ~ 8.1	0	
, o.m.g poomen	500	Below 3.0	0	
Partial load	900	2.0~12.0	255~275	
2-5 Solenoid	Max.cut-in vol			

DKKC N	lo. 104740-20	81
Date:	15. Oct. 1987	7 1
Compan	y: NISSAN	
No.	1670013C00	
For Test Microfic	Condition see he No.WP-210(I	N16)
Cha	rge air Diffe	rence in

3. 20~3. 40 mm 5.65~5.85 mm

0.80~1.00 mm

21.0~29.0 deg

4.3~ 9.6 mm

36.0~46.0 deg 10.9~14.6 mm 10.5~11.5 deg 6.9~7.5 mm

Control lever angle

mm

BOSCH No. 9 460 610 260 1/3

	LOAD TIMER ADJUSTMENT
1	) Adjustment

O Note

① Fix the control lever in the position satisfying the following conditions.

mmHg

Boost Pressure: -

Pump Speed : 900 rpm

Fuel Injection : 17±1

Quantity

After adjustment of full load fuel injection quantity ( 600 rpm,

fuel injection quantity using the BCS spring set screw.

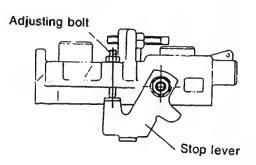
cc/1000st

② With the control lever positioned as described in ① avove, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1/3)

set the boost pressure at 255~275 mmHg, and at a pump speed of 900 rpm adjust the

Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right) .



DIESEL KIKI

Service Department

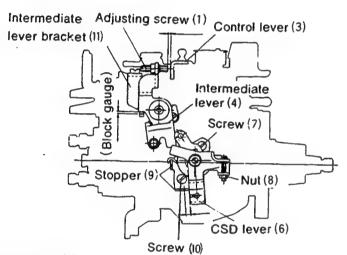
DIESEL KIKI CO. LTD. 3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN Tel (03) 400-1551 - Fax: (03) 499-4115

KF

MS **BCS**  104740-2061 3/3

#### ■ M—CSD Adjustment

- 1) Fix the intermediate lever adjustment screw in position (adjust with the M-CSD released)
  - 1. Hold the control lever (3) in the idling position.
  - 2. Move the adjusting screw to a horizontal position.
  - 3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is  $1\sim2$  mm, and then fix the screw using the nut.



- 2) Fixing the M—CSD Stopper (9)
  - 1. Turn the drive shaft slowly and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
  - 2. Move the CSD lever (6) to the advance side.
  - 3. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
  - 4. Move the CSD lever to the advance side.
  - 5. Then, adjust the position of the stopper (9) so that the timer stroke is 1.2±0.2 mm and fix the stopper (9) using the screw (10).
- 3) Screw (7) Adjustment
  - 1. Fix the control lever in the idling position.
  - 2. Move the CSD lever to the advance side.
  - 3. Then, adjust the screw (7) so that the clearance between the control lever and the idling stopper bolt is  $7.2\pm0.5$  mm, and fix the screw (7) using the nut (8).

TEST OIL: I S O 4113 or S A E J967d

# Distributor-type

**ENGINE MODEL: SD23** 

Injection pump No: 104640-4681

(NP-VE4/10F2150RNP340)

Pump rotation:

Pre-stroke : 0.18~0.22 mm

For Test Condition see Microfiche No.WP-210(N16)

Date:

No.

BOSCH No. 9 460 610 261

DKKC No. 104740-4772

Company: NISSAN DIESEL

15. Oct. 1987

16700 18G0?

clockwise-viewed from drive side

1. Setting	Pump speed (rpm)		Settir	Settings		Difference in delivery(cc)	
1-1: Timing device travel	1,000	;	1.5~ 1.9	(mm)			
1-2 Supply pump pressure	1,000		4.0~ 4.6	(kg/cm²)			
1-3 Full load delivery without charge air pressure	1,000		35, 6~36, 6	(cc/1,000st)		3. 0	
Full load delivery with charge air pressure				(cc/1,000st)			
1—4 Idle speed regulation	300		4.3~ 8.3	(cc/1,000st)		2.0	
1-5 Start	100		45.0~80.0	(cc/1,000st)			
1-6 Full-load speed regulation	2, 450		8.6 ~15.6	(cc/1,000st)			
1-8							

2. Test Specif		,			2.150		
2—1 Timing dev	ice N		000 ~ 2.G	1, 400 2.6~ 3.8	2, 150 5. 6~ 6. 8		
2—2 Supply pur	ıp N		000 ~ 4.6	1,400 5.6~ 5.6	2, 150 6.8~ 7.4		
2-3 Overflow de	elivery N	= rpm 1, 0 cc/10s 8.0-	000 ~52. 0				
2-4 Fuel delive	ries				3. Dim	ensions	
Speed controi lever	Pump speed (rpm)	Fuel delivery (cc/1,000st)		r Difference in delivery	K KF	3. 2 ~3. 4 5. 65~5. 85	mm
End stop	2,600	Below 5. 0		;	MS	1.1 ~1.3	mm
	2, 450	8.1~16.1			BCS		mm
	2, 150	31.9~35.9					
	1,000	35.1~37.1		ī	Cont	rol lever angle	
	600	30.3~34.3			α	21.0~29.0	den
			!	`	Ā	4.0~ 9.2	_
	•	:	•		β	41.0~51.0	deg
	•		i		В	18.6~22.6	mm
					γ	_	deg
Switch OFF	300	0			С		mm
Idle stop	300 350	4. 3~ 8. 3 Be!sw 3. 0	:	:			
	***************************************	<u>.</u>					
	<b>.</b>						
2-5 Solenoid	: Max.cut-in vo						

TEST OIL: I S O 4113 or S A E J967d

Distributor-type

**ENGINE MODEL: PN** 

Injection pump No: 104649-0331 (NP-VE4/9F2350RNP355)

Pump rotation:

clockwise-viewed from drive side

Pre-stroke: mm

For Test Condition see Microfiche No.WP-210(N16)

Company: MAZDA

Date:

BOSCH No. 9 460 610 262 1/4 DKKC No. 104749-0294

15. Oct. 1987

PN13 13 800E

1. Setting	Pump speed (rpm)	Settings		Charge air press(mmHg)	Difference in delivery(cc)
<ul> <li>1-1 Timing device travel</li> <li>1-2 Supply pump pressure</li> <li>1-3 Full load delivery without</li> </ul>	1,500 1,500 1,500	3. 4~ 3. 8 4. 4~ 5. 0 34. 6~35. 6	(mm) (kg/cm²) (cc/1,090st)		2.5
charge air pressure Full load delivery with charge air pressure	,		(cc/1,000st)		
<ul><li>1-4 Idle speed regulation</li><li>1-5 Start</li></ul>	410 100 2,635	5. 0~ 7. 0 55. 0~70. 0 6. 0~10. 0	(cc/1,000st) (cc/1,000st) (cc/1,000st)		2.0
1-6 Full-load speed regulation 1-7 Load—timer adjustment 1-8	1,500	2.9± 0.2	(mm) ;		

#### 2. Test Specifications

2-1 Timing device	N = rpm mm	1,000 0.6~ 1.8	1,500 3.3~ 3.9	2,350 7.1~ 8.3	
2—2 Supply pump	$N = rpm kg/cm^2$	1,000 3.0~ 3.6	1,500 4.4~ 5.0	2, 350 6. 8~ 7. 4	
	h' = rpm	1 500			

2-3 Overflow elivery 53.0~97.0 cc/10s

			١
2-4	Fuel	injaction	quantities

		66/108 30.0	-37.0		
2-4 Fuel inject	con quantities		•		3.
Speed control lever position	Pump speed (rpm)	Fuel delivery (cc/1,000st)	Charge air press(mmHg)	Difference in delivery(cc)	K
Full speed position	1,500	34.1~36.1			i MS
	500	30.4~38.4	;		BC
	2, 350	29.2~33.2			
	2, 635	5.0~i1.0		1	
	2,800	Below 3.0	1		
	•				
			1 10 10		
Switch @FF	410	0			
Idling Cosition	410	5.0~ 9.0			
2-5	Max.cut-in vol	tage: 8 V		<u>.</u>	1

imensions 3.2~3.4 5.7~5.9 mm1.4~1.6 mm mm

Cor	ntrol lever angle	
α A	23.0~27.0 34.5~37.5	deg mm
β Β	38.0~48.0 11.9~15.2	deg
Υ C		deg

#### **■ LOAD TIMER ADJUSTMENT**

1) Adjustment

(1) Fix the control lever in the position satisfying the following conditions.

Boost Pressure: -

mmHg rpm

Pump Speed : 1500

Fuel Injection : 31, 2±1

cc/1000st

Quantity

With the control lever positioned as described in ① avove, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1/4)

#### 2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

	Control lever positi	. Specified Values		
Pump speed (rpm)	Fuel Injection Quantity(cc/1000st)	Boost pressure (mmHg)	Timer stroke (mm)	Timer stroke reduction value (mm)
1500	31±1.5	_	2.9±0.3	_
1500	22±1.5	_	(1.9)	_

Solenoid

Test voltage: 12~14 V

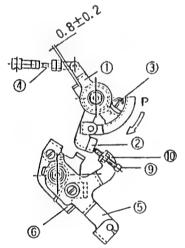
104749-0294 3/4

#### 104749-0294 4/4

#### Side link lever adjustment

#### 1) Side link lever adjustment

- 1. Figure control lever in the idling position.
- 2. Confirm that the side link lever ② contact the stopper ③ through the springs action.
- 3. Rotate the side link lever ① gently in P direction so that the connecting rod ④ play is zero
- 4. Adjust the length of rod 4 so that the gap at the levers 1 and 2 is  $0.8\pm0.2$  mm.
- 5. Tighten the two nuts on rod 4.



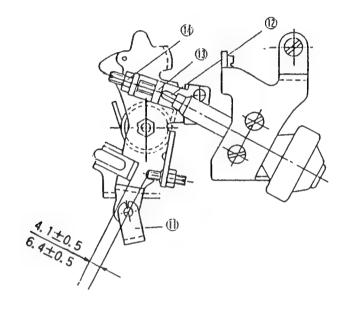
#### 2) Fixing the M-CSD stopper

- 1. Fix the M—CSD assembly temporarily to the pump housing.
- 2. Turn the drive shaft at least two turns in the direction of pump rotation.
- 3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disk).
- 4. Move the CSD lever to the advance side.
- 5. Fix the CSD lever (5) in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
- 6. Adjust using the adjusting screw ① so that the gap between the CSD lever ⑤ and the stopper ⑥ is 0.5+2 mm.
- 7. After adjust, tighten the nut (8) to the specified torque.

T = 0.6 to 0.9 kg.m

### 3) M-CSD Adjustment

- 1. Move the CSD lever (5) through its full stroke.
- 2. Adjust the screw 9 so that the gap between the control lever 1 and idling adjusting bolt is  $4.1\pm0.5$  mm, and then fix in the this position.



#### DASH POT ADJUSTMENT

- ① Insert a block gauge (thickness gauge) of thickness  $6.4\pm0.5$  in the gap between the idling stopper bolt and the bracket. (control lever angle: 15.2°)
- ② With the control lever positioned as described in ① above, adjust the Dashpot adjusting screw ④ so that the Dashpot adjusting screw ④ and the push rod ② are in contact. Fix using the nut.

# INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL: I S O 4113 or S A E J967d

**ENGINE MODEL: PN** 

Injection pump No: 104649-0343 [NP-VE4/9F2350RNP540]

Pump rotation:

clockwise-viewed from drive side

Pre-stroke: mra BOSCH No. 9 460 610 263 1/4 DKKC No. 104749-0323

15. Oct. 1987 Date:

Company: MAZDA No.

2,350 7.1~ 8.3 2,350 6.8~ 7.4

PN2213800C

For Test Condition see Microfiche No.WP-210(N16)

1. 8	Setting	Pump speed (rpm)	Settir	ngs	Charge air press(mmHg)	Difference in delivery(cc)
1-1	Timing device travel	1,500	3.7~ 4.1	(mm)		
1-2	Supply pump pressure	1,500	4.4~ 5.0	(kg/cm²)		
	Full load delivery without charge air pressure	1,500	35.6~36.6	(cc/1,000st)		2.5
	Full load delivery with charge air pressure			(cc/1,000st)		•
1-4	Idle speed regulation	410	5.0~ 7.0	(cc/1,000st)		2.0
	Start	100	55.0~75.0	(cc/1,000st)		
	Full-load speed regulation	2,635	6.0~10.0	(cc/1,000st)		
1-7	Load-timer Adjustment	1,500	$3.2\pm0.2$	(mm)		
1-8						

### 2. Test Specifications

2-1	Timing device		N	=	rpm mm	1,000 1.0~ 2.2	1,500 3.6~ 4.2
2-2	Supply pump	•	N	=	rpm kg/cm²	1,000 3.0~ 3.6	1,500 4.4~ 5.0
2 2	Overflow deligens		N	=	rpm		1,500

2-5

Sclenoid

2-4 Fuel inject	ion quantities			
Speed control lever position	Pump speed (rpm)	Fuel delivery (cc/1,000st)	Charge air press(mmHg)	Difference in delivery(cc)
Full speed position	1,500	35.1~37.1		
	500	31.2~39.2		
	2, 350	29.3~33.3		
	2, 635	5.0~11.0		
	2, 800	Below 3.0		
Switch OFF	410	0		
Idling position	410	5.0~ 7.0		, and all the second se
	;			
	•			

#### 3. Dimensions 3.2~3.4 mm 5.7~5.9 KF MS 1.4~1.6 mm BCS mm

Co	ntrol lever angle	
C	23.0°~27.0° de	g
Α	34.5∼ 7.5 mr	n
β	38.0°~48.0° de	g
В	11.9~15.2 mr	n
γ	- de	g
С	_ mr	n

#### LOAD TIMER ADJUSTMENT

#### 1) Adjustment

(i) Fix the control lever in the position satisfying the following conditions.

Boost Pressure: mmHg

Pump Speed : 1500 rpm

Fuel Injection : 32.2±1 cc/1000st

Quantity

② With the control lever positioned as described in ① avove, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1 / 4)

### 2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

	Control lever position	Specified Values		
Pump speed (rpm)	Fuel Injection Quantity(cc/1000st)	Boost pressure (mmHg)	Timer stroke (mm)	Timer stroke reduction value (mm)
1500	32.2±1.5	-	3.2±0.3	_ "
1500	23.1±1.5	-	(2.2)	_

Max.cut-in voltage: 8 V

Test voltage: 12~14 V

104749-0323 3/4

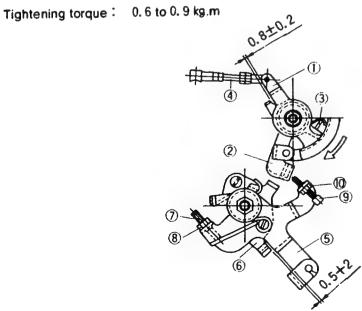
# Side Link Lever Adjustment

### 1) Side Link Lever Adjustment

- 1. Fix the control lever in the idling position.
- 2. Move the side link lever ② so that it contacts the stopper ③.
- 3. Rotate the side link lever ① gently in the direction of P so that the connecting rod ④ play is
- 4. Adjust the length of rod 4 so that the gap between the levers 1 and 2 is  $0.8\pm0.2$  mm.
- 5. Tighten the two nuts on rod 4.

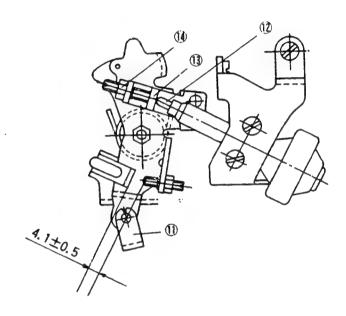
### 2) Fixing the M-CSD Stopper

- 1. Fix the M—CSD assembly to the pump housing.
- 2. Turn the drive shaft at least two turns in the direction of pump rotation.
- 3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disk).
- 4. Move the CSD lever to the advance side.
- 5. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
- 6. Adjust using the adjusting screw ② so that the gap between the CSD lever ⑤ and the stopper ⑥ is 0.5+2 mm.
- 7. After adjustment, tighten the nut (8) to the specified torque.



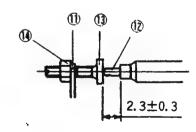
#### 3) M-CSD Adjustment

- 1. Move the M-CSD lever (5) through its full stroke.
- 2. Adjust the screw 9 so that the gap between the control lever 1 and the idling adjusting bolt is 4.1±0.5 mm, and then fix the screw 9 in this position.



### DASHPOT ADJUSTMENT.

- 1. Fix the control lever (11) in the idling position.
- 2. Adjust the screw (13) so that the pushrod (12) protuder 2.  $3\pm0.3$  mm.



TEST OIL: I S O 4113 or S A E J967d

Distributor-type **ENGINE MODEL: PN** 

Injection pump No: 104649-0381

(NP-VE4/9F2350RNP540)

Pump rotation :

clockwise-viewed from drive side

For Test Condition see

Pre-stroke: -

1. Setti	ng	Pump speed (rpm)	Setti	ngs	Charge air press(mmHg)	Difference in delivery(cc)
	ning device trave! oply pump pressure	1,500 1,500	3.7~ 4.1 4.4~ 5.0	(mm) (kg/cm²)		
1-3 Full	I load delivery without arge air pressure	1,500	35.6~36.6	(cc/1,000st)		2.5
Full	I load delswery with arge air pressure			(cc/1,000st)		
	speed regulation	410	5.0~ 7.0	(cc/1,000st)		2.0
1-5 Sta	•	100	55.0~70.0	(cc/1,000st)		
	-load speed regulation	2,635	6.0~10.0	(cc/1,000st)		
	ad-timer adjustment	1,500	3.2± 0.2	(mm)		

2	Toot	Spec	ifica	tions
<i>L</i> .	l est	Spec	ill Ca	UO115

2-1	Timing device	N	=	rpm mm	1,000 1.0~ 2.2	1,500 3.6~ 4.2
2-2	Supply pump	N	=	rpm kg/cm²	1,000 3.0~ 3.6	1,500 4.4~ 5.0
	Overflow delivery	N	=	rpm cc/10s		1,500 53.0~97.0

Solenoid

Speed control lever position	Pump speed (rpm)	Fuel delivery (cc/1, 000st)	Charge air press(mmHg)	Difference in delivery(cc)
Full speed position	1,500	35.1~37.1		
	500	31.2~39.2		
	2, 350	29.3~33.3	:	
	2,635	5.0~11.0		
	2,800	Below 3.0	9	
Switch OFF	410	0		
Idling position	410	5.0~ 7.0		
2 <del></del> 5	Max.cut-in vol	tage:8 V		

BOSCH No.	9 460 610 264	1)	4
DKKC No.	104749-0333		
Date:	15. Oct. 1987	-	

Company: MAZDA PN23 13 800C No.

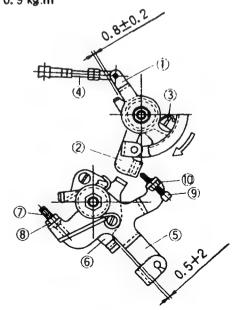
Microfiche No.WP-210(N16)

1) Side Link Lever Adjustment

Side Link Lever Adjustment

- 1. Fix the control lever in the idling position.
- 2. Move the side link lever ② so that it contacts the stopper ③.
- 3. Rotate the side link lever ① gently in the direction of P so that the connecting rod ④ play is
- 4. Adjust the length of rod 4 so that the gap between the levers 1 and 2 is 0.8±0.2 mm.
- 5. Tighten the two nuts on rod 4.
- 2) Fixing the M-CSD Stopper
  - 1. Fix the M—CSD assembly temporarily to the pump housing.
  - 2. Turn the drive shaft at least two turns in the direction of pump rotation.
  - 3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disk).
  - 4. Move the CSD lever to the advance side.
  - 5. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
  - 6. Adjust using the adjusting screw ② so that the gap between the CSD lever ⑤ and the stopper 6 is 0.5+2 mm.
  - 7. After adjustment, tighten the nut ® to the specified torque.

Tightening torque: 0.6 to 0.9 kg.m





Test voltage: 12~14 V

2,350

2,350 6.8~ 7.4

> KF MS

BCS

В Y

C

3. Dimensions

1.4~1.6

23.0°~27.0° deg 34.5~37.5 mm 38.0°~48.0° deg 11.9~15.2 mm

Control lever angle

mm

mm

deg

mm

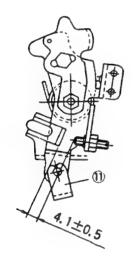
7.1~ 8.3

104749-0333 3/4

3) M-CSD Adjustment

1. Move the M—CSD lever (5) through its full stroke.

2. Adjust the screw 9 so that the gap between the control lever 1 and the idling adjusting bolt is 4.1 $\pm$ 0.5 mm, and then fix the screw 9 in this position.



#### ■ LOAD TIMER ADJUSTMENT

i ) Adjustment

① Fix the control lever in the position satisfying the following conditions.

Boost Pressure: — mmHg

Pump Speed : 1500 rpm

Fuel Injection : 32.2±1 cc/1000st

Quantity

② With the control lever positioned as described in ① avove, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1 / 4)

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Time! Stroke.

	Control lever position	Specified Values			
Pump speed (rpm)	Fuel Injection Quantity(cc/1000st)	Boost pressure (mmHg)	Timer stroke (mm)	Timer stroke reduction value (mm)	
1500	32.2±1.5	-	3. 2±0. 3	_	
1500	23.1±1.5	_	(2.2)	_	

104749-0333 4/4



0

1/3

# INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL: I S O 4113 or S A E J967d

**ENGINE MODEL: LD20E** 

[NP-VE4/9F2200RNP465] Injection pump No: 104649-2231

Pump rotation :

Pre-stroke: -

clockwise-viewed from drive side

For Test Condition see Microfiche No.WP-210(N16)

16700 D9702 No.

15. Oct. 1987

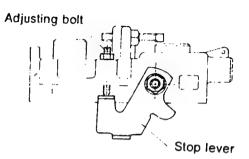
BOSCH No. 9 460 610 265 DKKC No. 104749-2231

Company: NISSAN(MISA)

Date:

	Starting	Injection	Quantity	Adjustment
--	----------	-----------	----------	------------

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right) .



### ■ M—CSD Adjustment

- 1) Fix the intermediate lever adjustment screw in position. (Adjust with the M-CSD released)
  - 1. Hold the control lever (3) in the idling position.
  - 2 · Move the adjusting screw to a horizontal position.
  - 3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is 1~2mm, and then fix using the nut.

Intermediate Adjusting screw(1)
Intermediate Adjusting screw (1)  lever bracket (11)  Intermediate lever (4)  Screw (7)  Stopper (9)  Nut (8)
CSD lever (6) Screw (I0)

1.	Setting	Pump speed (rpm)	Settin	gs	Charge air press(mmHg)	Difference in delivery(cc)	
1-1	Timing device travel	900	$T=1.3\sim 1.7$	(mm)			
	Supply pump pressure	900	3.2~ 3.8	(kg/cm²)			
	Full load delivery without charge air pressure	2, 200	30.2~ 31.2	(cc/1,000st)		2.5	
	Full load delivery with charge air pressure			(cc/1,000st)			
1-4	Idle speed regulation	350	4.7~ 7.7	(cc/1,000st)			
	Start	100	40.0~50.0	(cc/1,000st)			
1-6	Full-load speed regulation	2,570	10.4~16.4	(cc/1,000st)		•	
	Load-timer adjustment	900	$0.65 \pm 0.20$	(mm)			
1-8							

## 2. Test Specifications

2-1	Timing device	N	= rpm mm	900 1. 2~1. 8	1,800 5.5~ 6.7	2, 200 7. 2~ 8. 4	
2-2	Supply pump	N	= rpm kg/cm²	900 3.1~ 3.9	1,800 5.1~ 5.9	2, 200 6. 0~ 6. 8	
2-3	Overflow delivery	N	= rpm cc/10s	900 35. 0~79. 0			

Speed control lever position	Pump speed (rpm)	Fuel delivery (cc/1, 000st)	Charge air press(mmHg)	Difference in delivery(cc)
Full speed position	2, 200	29.7~31.7		
	900	29.0~33.0		
	2, 570	9.9~16.9		
	2, 800	Below 6.0		
Switch OFF	350	0		Augusta ( ) (Am ) and and
Idling position	350 500	4. 2~ 8. 2 Below 3. 0		2.5
Partial load	900	4.1~14.1		
2—5	Max.cut-in volt	age:8 V	<u>.</u>	

3. 2~3. 4	mm
5.7~5.9	mm
1.1~1.3	mm
	mm
•	
i	
itroi lever angle	
21.0~29.0	deg
4.3~ 9.6	mm
36.0~46.0	deg
10.9~14.6	mm
10.5~11.5	deg
6.9~ 7.5	mm
	5. 7~5. 9 1. 1~1. 3 —  atrol lever angle 21. 0~29. 0 4. 3~ 9. 6 36. 0~46. 0 10. 9~14. 6

3. Dimensions

Solenoid

Test voltage: 12~14 V

C - 8

104749-2231 3/3

#### 2) Fixing the M-CSD stopper 9

- 1. Turn the drive shaft slowly,and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
- 2. Move the CSD lever 6 to the advance side.
- 3. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
- 4. Move the CSD lever to the advance side.
- 5. Then, adjust the position of the stopper (9) so that the timer stroke is 1.8±0.2 mm, and fix the stopper 9 using the screw (10).

#### 3) Screw 7: Adjustment

- 1. Fix the control lever in the idling position.
- 2. Move the CSD lever to the advance side.
- 3. Then, adjust the screw '7' so that the clearance between the control lever and the idling stopper bolt is  $-7.2\pm0.5$ mm, and fix the screw (7) using the nut (8).

# Distributor-type

TEST OIL: I S O 4113 or S A E J967d

**ENGINE MODEL: RD28** 

Injection pump No: 104669-2112 (NP-VE6/9F2500RNP40)

Pump rotation:

clockwise-viewed from drive side

Pre-stroke:

mm

BOSCH No. 9 460 610 266 1/4

DKKC No. 104769-2104

Date: 15. Oct. 1987

Company: NISSAN

16700 V7213

For Test Condition see Microfiche No.WP-210(N16)

1.	Setting	Pump speed Settings (rpm)			Charge air press(mmHg)	Difference in delivery(cc)
1-1	Timing device travel	900	1.2 ~ 1.6	(mm)	•	
1-2	Supply pump pressure	900	3.5~ 4.1	(kg/cm²)		
1-3	Full load delivery without charge air pressure	900	30.9~31.9	(cc/1,000st)		2.5
	Full load delivery with charge air pressure			(cc/1,000st)		
1-4	Idle speed regulation	350	5.8~ 8.8	(cc/1,000st)	•	
1-5	Start	100	40.8~48.8	(cc/1,000st)		
1-6	Full-load speed regulation	2,600	15.5~21.5	(cc/1,000st)		1.5
1-7						
1-8						

#### 2. Test Specifications

2-1	Timing device		14	_	mm i	1.1 ~ 1.7	2.7~ 3.5
	Supply pump		N	=	rpm kg/cm²	900 3.4~ 4.2	1,800 5.5 ~ 6.3
2-3	Overflow delivery	. 1	N	=	rpm	900	

2-4 Fuel deliveries

Speed control	Pump speed	Fuel delivery	Charge air	Difference
lever	(rpm)	(cc/1, 000st)	press(mmHg)	in delivery
End stop	2,800	Below 5.0		
	2,600	15.0~22.0		
	2,300	28.0 ~ 32.0		
	900	30. 4~32. 4	:	
	600	29. 1~33. 1	:	
			:	
			:	
			:	
	· · · · · · · · · · · · · · · · · · ·			
Switch OFF	350	0		
Idle stop	350	5.3~ 9.3		1.9
	500	Below 4.0		
	• • • • • • • • • • • • • • • • • • • •	0.5.10.5		
Partial load	900	2.5~12.5		
2-5	Max.cut-in volt	age:8 V	المنا الما	
Solenoid	Test voltage:			

2,500 <b>7.2</b> ~ <b>8.0</b>	

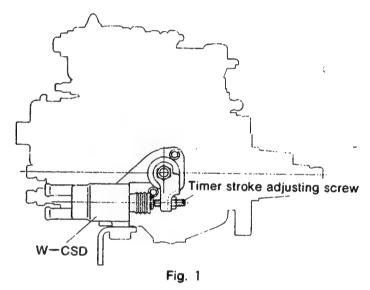
2,300 8.1~ 9.0

3. Dim	ensions	
K	3.2 ~3.4	mm
KF	6.54~6.74	mm
MS	1.7 ~1.9	mm
BCS		mm
	•	

Control lever a	ngle
α 19.0 ~ 2	27.0 deg
A 8.7 ~ 1	12.9 mm
β 37.0 ~4	17.0 deg
B : 11.5 ~ 1	15.2 mm
Y 10.5~1	1.5 deg
C 5.7~	6.3 mm

#### ■ W—CSD Adjustment

- 1) Timer Stroke Adjustment
  - 1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
  - 2. Adjust using the timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

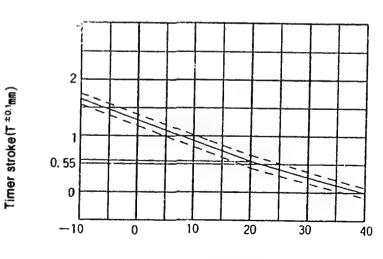


#### Formula for calculating Fig. 2

Formula for calculating timer stroke:

When  $-10 \le t(^{\circ}C) \le 20$ T = -0.0367t + 1.284

20≦t(°C)≦40 T = -0.0275t + 1.1When



Atmospheric temperature (t°C)

Fig. 2

DIESEL KIKI CO., LTD. 3.6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN

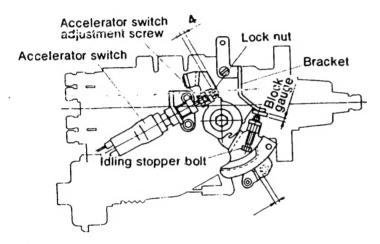
Service Department

Tel. (03) 400-1551: Fax (03) 499-4115

104769-2104 3/4

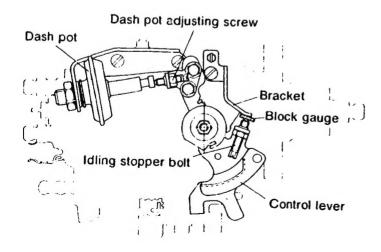
#### Accelerator Switch Adjustment

- Adjust so that the accelerator switch adjustment screw protrudes 4 mm from the locknut, and then lock in position.
- 2. Insert a block gauge of  $2.5 \pm 0.1$  mm thickness between the idling stopper bolt and the bracket.
- 3. Then, adjust the installation position of the accelerator switch so that it is turned



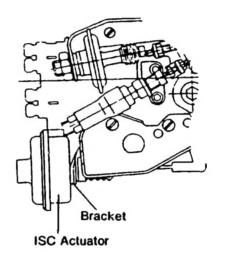
#### DASH POT ADJUSTMENT

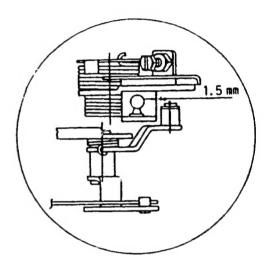
- (i) Insert a block gauge (thickness gauge) of thickness  $2.7\pm0.05$  mm in the gap between the idling stopper bolt and the bracket.
- With the control lever positioned as described in ① above, adjust the dashpot adjusting screw so that the dashpot adjusting screw and the push rod are in contact. Fix the screw using the nut.



#### ■ ISC (Idle Speed Control) Actuator Installation

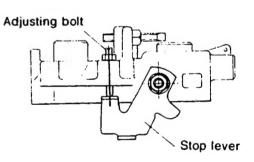
- 1. Hold the control lever in the idling position.
- 2. Adjust the position of the actuator bracket so that the gap between the control lever and the ISC lever roller is  $1.5\pm0.5$  mm, and then fix the bracket in position.





Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



TEST OIL I S O 4113 or S A E J967d

Distributor-type

**ENGINE MODEL: RD28** 

clockwise-viewed from drive side

(NP-VE6/9F2500RNP40) Injection pump No: 104669-2112

BOSCH No. 9 460 610 267 1/4 DKKC No. 104769-2114 Date: 15. Oct. 1987 Company: NISSAN

16700 V7204

For Test Condition see Microfiche No.WP-210(N16)

Pump rotation : Pre-stroke:

Difference in Pump speed Charge air Settings 1. Setting press(mmHy) (rpm) delivery(cc) 900 1-1 Timing device travel  $1.2 \sim 1.6$ (mm) 900 (kg/cm²) 3.5~ 4.1 1-2 Supply pump pressure 1-3 Full load delivery without 900 30.9~31.9 (cc/1,000st) 2.5 charge air pressure (cc/1,000st)Full load delivery with charge air pressure (cc/1,000st)350 5.8~ 8.8 1-4 Idle speed regulation 100 40.8~48.8 (cc/1,000st)1-5 Start 2,600 15.5~21.5 (cc/1,000st)Full-load speed regulation 1-8

#### 2. Test Specifications

2-1 Timing device	N = rpm mm	900 1.1 ~ 1.7	1, 200 2.7~ 3.5	2,300 8.1~ 9.0	
2-2 Supply pump	$N = rpm kg/cm^2$	900 3. 4~ 4. 2	1,800 5.5 ~ 6.3	2,500 7.2 ~ 8.0	
2-3 Overflow delivery	N = rpm $cc/10s$	900 43. 0~87. 0	190 TO THE RESIDENCE OF THE PARTY OF THE PAR		

#### 2-4 Fuel deliveries

Speed control lever	Pump speed (rpm)	Fuel delivery (cc/1,000st)	Charge air press(mmHg)	Difference in delivery	
End stop	2,800	Below 5. 0			
	2,600	15.0~22.0	į		
	2, 300	$28.0 \sim 32.0$			
	900	30. 4~32. 4			
	600	29. 1~33. 1			
Switch OFF	350	0			
Idle stop	350	5.3~ 9.3		1.4	
Total Stop	500	Below 4.0			
Partial load	900	2.5~12.5			
2-5	Max.cut-in volt		<del></del>		
Solenoid	Test voltage:	12~14 V			

K	3.2 ~3.4	mm
KF	6.54~6.74	mm
MS	1.7 ~1.9	mm
BCS	_	mm
Co.	trot lover angle	
Con	trol lever angle	
α	19.0 ~ 27.0	deg
Α	8.7 ~ 12.9	mm
β	37.0 ~ 47.0	deg
В	11.5 ~ 15.2	mm
γ	10.5~11.5	deg
С	5.7~ 6.3	mm

3. Dimensions

#### ■ W—CSD Adjustment

- 1) Timer Stroke Adjustment (adjust to the thick line)
  - i. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
  - 2. Adjust using the timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

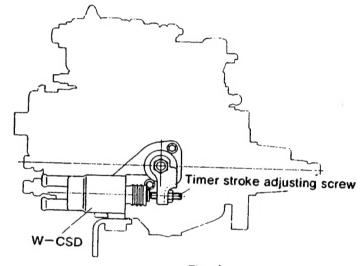


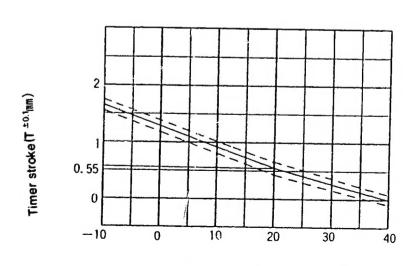
Fig. 1

#### Formula for calculating Fig. 2

Formula for calculating timer stroke:

When -10≦t(°C)≦20 T = -0.0367t + 1.284

When 20≦t(℃)≦40 T = -0.0275t + 1.1



Atmospheric temperature (t°C)

Fig. 2

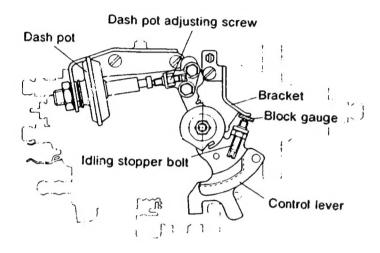
DIESEL KIKI CO., LTD. Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN Tel. (03) 400-1551-Fax: (03) 499-4115

#### 194769-21143/4

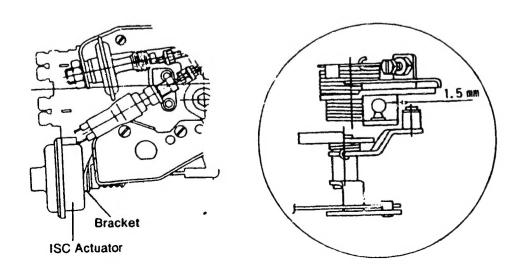
### ■ DASH POT ADJUSTMENT

- ① Inpert a block gauge (thickness gauge) of thickness 2.7±0.05 mm in the gap between the idling stopper bolt and the bracket.
- With the control lever positioned as described in ① above, adjust the dashpot adjusting screw so that the dashpot adjusting screw and the push rod are in contact. Fix the screw using the nut.



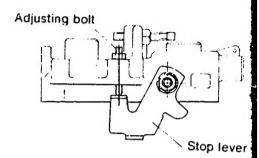
# ISC (Idle Speed Control) Actuator Installation

- 1. Hold the control lever in the idling position.
- 2. Adjust the position of the actuator bracket so that the gap between the control lever and the ISC lever roller is  $1.5\pm0.5$  mm, and then fix the bracket in position.



#### Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



# Table of Contents (DKKC No. → BOSCH No.)

# Table of Contents (BOSCH No. --- DKKC No.)

0440	20001111	looste II	DKKC #1-	BOSCH No.	Location	BOSCH No.	DKKC No.	Location	DKKC No.	BOSCH No.	Location
DKKC No.	BOSCH No.	Location WP-215 B- 1~B- 2	DKKC No.	BUSUN NO.	LUCGINA		101641-9123	WP-215 B- 3~B- 5			
	1	WP-215B- 1 B- 2 WP-215B- 3~B- 5					1	WP-215 B- 1~B- 2			
		WP-215B- 6~B- 8					ı	WP-2158- 6~B- 8			
		WP-2158- 9~B-11						WP-215 B- 9~B-11			
	9 460 610 259					9 460 610 259	104740-1141	WP-215 B-12			
		WP-215 B-13~B-14				9 460 610 260	104740-2061	WP-215 B-13~5-14			
	9 460 610 261	1				9 460 610 261	104740-4702	WP-215 B-15			
		WP-215 C- 1~C- 2				9 460 610 262	104749-0294	WP-215 C- 1~C- 2			
	1	WP-215 C- 3~C- 4				9 460 610 263	104749-0323	WP-215 C- 3~C- 4			
		WP-215 C- 5~C- 6				9 460 610 264	104749-0333	WP-215 C- 5~C- 6			
	1	WP-215 C- 7~C- 8					104749-2231	: II	.1		
		WP-215 C- 9~C-10					104769-2104	1			
104769-2114	9 460 610 267	WP-215 C-11~C-12		1		9 460 610 267	104769-2114	WP-215 C-11~C-12	,		
										1	
		1								1	
				Ì							
				]							
				i							
							1				
				1		÷					
	Ì	}					1				
						30					
		İ		į į							
						÷		!		i I	
	ļ										
						<b>:</b>					
		1					1				
						20					
				*		÷ .					
		,	i								
									L	<u>i</u>	